UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,160	02/27/2002	Byron A. Alcorn	100110664-1	2666

7590 01/26/2004

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
QUILLEN, ALLEN E	

ART UNIT	PAPER NUMBER
2676	

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/086,160	ALCORN, BYRON A.	
	Examiner	Art Unit	
	Allen E. Quillen	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-35 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claims 1-3, 6, 10-11, 15, 17-20, 22-23, 25-26, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lett et al, U.S. Patent Application Publication 2003/0009099 and Humphreys et al, *WireGL: A Scalable Graphics System for Clusters*, ACM SIGGRAPH 2001, Los Angeles, CA, August, 2001, ACM Press, NY, NY, pp. 129-140.

3. Regarding claim 1, representative of claims 10, 17-19, 23, 25, 32, Lett discloses a distributed resource system (Page 2, Paragraph 15; Pages 7-8, Paragraphs 68, 72, 74, 75, 77, *Common Object Request Broker Architecture, CORBA Interface Definition Language, IDL, dynamic interfaces (DII and DSI); objects interact through the interface*), comprising: a plurality of compute resource units (Page 4, Paragraph 46) operable to execute applications (*simulation*

software for modeling, main program, software package, Pages 1-2, Paragraphs 7-10; *in a distributed network to form an application,* Page 4, Paragraph 40; *OpenMP,* Page 7, Paragraph 68) and generate graphics data (Page 1, Paragraph 9; Page 5, Paragraph 47); a plurality of visualization resource units (Page 4, Paragraph 40) communicatively coupled to the plurality of compute resource units (Figure 1C, Page 3, Paragraph 22) and operable to render from the graphics data (Page 1, Paragraph 9; Page 2, Paragraph 15; Page 5, Paragraph 50); a first network (*private network,* Figure 1B, Page 4, Paragraph 45; Figure 1C, *Internet, other network,* Paragraph 46); a compositor (Page 5, Paragraph 54) coupled to the plurality of visualization resource units via the first network and operable to receive the data therefrom, and a plurality of display devices (see above, Page 8, Paragraph 79) at least one of which is located remotely (Page 8, Paragraphs 74, 77) from the plurality of compute resource units and coupled to the compositor operable to display (Page 2, Paragraph 15).

Lett does not disclose graphics application, pixel data, a network compositor, the compositor operable to synchronize the received pixel data from the plurality of visualization resource units and composite the synchronized pixel data into at least one image. Humphreys teaches graphics application (Page 131, Paragraph 2.3), pixel data (Page 135, 3 lines above Paragraph 5), a network compositor (*reassembling an output image,* Page 129, Abstract; *Image Composition Network, final displays,* Figure 2, Page 131; *Display Reassembly, final rendered image...redistribured over a network...interconnect to a separate compositing server for reassembly,* Pages 134-135, Paragraph 4.2), the at least one image (Page 131, Paragraph 3; Page 133, Paragraph 4), the compositor operable to synchronize (Page 132, Paragraph 3.1, left side, 5th Paragraph, line 3 from bottom, right side, 3rd Paragraph from bottom) the received pixel data

from the plurality of visualization resource units (see above, Figure 2) and composite the synchronized pixel data into at least one image (Figure 1, Page 131, Paragraph 3; Page 133, Paragraph 4). The motivation for combining distributed computing and visualizations with graphics application, pixel data, a network compositor, the compositor operable to synchronize the received pixel data from the plurality of visualization resource units and composite the synchronized pixel data into at least one image is to allow users to build graphics systems at a fraction of the cost of a traditional graphics supercomputer, or for the same price, realize much higher performance (Page 139, Paragraph 7). Humphreys is evidence that at the time of the invention, it would have been obvious to one skilled in the art of designing remote distributed collaborative processing machines, to combine the benefits of distributed computing and visualizations, as Lett discloses, with graphics composited displays, as Humphreys teaches, to achieve high performance cost-effective scalable rendering performance.

4. Regarding claim 2, representative of claim 11, Lett discloses the system, as set forth in claim 1, further comprising a second network coupling the plurality of display devices to the network compositor (see above).

Lett does not disclose a network compositor. Humphreys teaches a network compositor (*reassembling an output image,* Page 129, Abstract; *Image Composition Network, final displays,* Figure 2, Page 131; *Display Reassembly, final rendered image...redistribured over a network...interconnect to a separate compositing server for reassembly,* Pages 134-135, Paragraph 4.2). The motivation for combining distributed computing and visualizations with a network compositor is to allow users to build graphics systems at a fraction of the cost of a

traditional graphics supercomputer, or for the same price, realize much higher performance (Page 139, Paragraph 7). Humphreys is evidence that at the time of the invention, it would have been obvious to one skilled in the art of designing remote distributed collaborative processing machines, to combine the benefits of distributed computing and visualizations, as Lett discloses, with graphics composited displays, as Humphreys teaches, to achieve high performance cost-effective scalable rendering performance.

5. Regarding claim 3, representative of claims 15, 20, Lett discloses the system, as set forth in claim 1, wherein the plurality of visualization resource units (see above).

Lett does not disclose comprises a graphics engine rendering the pixel data. Humphreys teaches comprises a (*OpenGL*) graphics engine rendering the pixel data (Page 131, Paragraph 2.3, pixel data, Page 135, 3 lines above Paragraph 5; *Display Reassembly, final rendered image...redistribured over a network...interconnect to a separate compositing server for reassembly,* Pages 134-135, Paragraph 4.2). The motivation for combining distributed computing and visualizations with a graphics engine rendering the pixel data is to allow users to build graphics systems at a fraction of the cost of a traditional graphics supercomputer, or for the same price, realize much higher performance (Page 139, Paragraph 7). Humphreys is evidence that at the time of the invention, it would have been obvious to one skilled in the art of designing remote distributed collaborative processing machines, to combine the benefits of distributed computing and visualizations, as Lett discloses, with pixel graphics-engine composited displays, as Humphreys teaches, to achieve high performance cost-effective scalable rendering performance.

6. Regarding claim 6, representative of claims 22, 26, Lett discloses the system, as set forth in claim 1, further comprising a plurality of data storage devices coupled to the compute resource units (Figure 1B, Page 1, Paragraph 9; Page 4, Paragraph 44).

Claim Rejections - 35 USC § 103

7. Claims 4, 16, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lett et al, U.S. Patent Application Publication 2003/0009099, and Humphreys et al, *WireGL: A Scalable Graphics System for Clusters*, ACM SIGGRAPH 2001, Los Angeles, CA, August, 2001, ACM Press, NY, NY, pp. 129-140 as applied to claim 1 above, and further in view of Anselmo Lastra et al, *Harnessing Parallelism for High-Performance Interactive Computer Graphics*, available on the world wide web at: *citeseer.nj.nec.com/lastra96harnessing.html*, 1996.

8. Regarding claim 4, representative of claims 16, 21, Lett discloses the system, as set forth in claim 1, wherein the plurality of visualization resource units comprising a plurality of local displays composited into at least one image (see above).

Lett does not disclose comprises a local compositor coupled to a graphics engine operable to composite rendered pixel data into at least one image. Lastra teaches comprises a local compositor coupled to a graphics engine operable to composite rendered pixel data into at least one image (Figures 1-5, Pages 1-5; Figure 6, Pages 8-9). The motivation for combining distributed computing and visualizations with a local compositor coupled to a graphics engine

operable to composite rendered pixel data into at least one image is to achieve a high performance, interactive computer graphics platform (Page 11, 2nd Observations paragraph). Lastra is evidence that at the time of the invention, it would have been obvious to one skilled in the art of designing remote distributed collaborative processing machines, to combine the benefits of distributed computing and visualizations, as Lett discloses, with a local compositor coupled to each pixel graphics-engine composited display, as Lastra teaches, to achieve a high performance, interactive computer graphics platform.

Claim Rejections - 35 USC § 103

9. Claims 5 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lett et al, U.S. Patent Application Publication 2003/0009099, and Humphreys et al, *WireGL: A Scalable Graphics System for Clusters*, ACM SIGGRAPH 2001, Los Angeles, CA, August, 2001, ACM Press, NY, NY, pp. 129-140 as applied to claim 1 above, and further in view of Ross et al, U.S. Patent 6,608,628.

10. Regarding claim 5, Lett discloses the system, as set forth in claim 1, wherein Lett implicitly discloses the plurality of display devices are operable to display at least one image across multiple display devices (see above). Ross teaches the plurality of display devices are operable to display at least one image across multiple display devices (*all VCC clients display the image,* Figures 1-3, 14-16, Column 3, lines 7-23; Column 11, lines 20-34; Column 14, lines 4-67). The motivation for combining distributed computing and visualizations with across multiple displays is to enable collaboration using a display at remote locations with or without

local rendering (Column 14, line 15-39). Ross is evidence that at the time of the invention, it would have been obvious to one skilled in the art of designing remote distributed collaborative processing machines, to combine the benefits of distributed computing and visualizations, as Lett discloses, with across multiple displays, as Ross teaches, to enable collaboration using a display at remote locations with or without local rendering.

11. Regarding claim 29, Lett and Humphreys disclose the method, as set forth in claim 25, wherein receiving and synchronizing the pixel data comprises: receiving a plurality of data from a plurality of sources; extracting the pixel data from the data; and compositing extracted pixel data having the same frame identifier.

Lett does not disclose packets, frame and frame identifier, determining a frame identifier for the extracted pixel data. Ross teaches packets, frame and frame identifier, determining a frame identifier for the extracted pixel data (*frame number, RLE, run-length-encoding,* Figures 17-18, Column 14, line 50 through Column 16, line 54). The motivation for combining distributed computing and visualizations with packets, determining frame, frame identifier, is to enable retaining all information in the transmission across the network (Column 15, line 21-25). Ross is evidence that at the time of the invention, it would have been obvious to one skilled in the art of designing remote distributed collaborative processing machines, to combine the benefits of distributed computing and visualizations, as Lett discloses, with run length encoding in frames, as Ross teaches, to enable retaining all information in the transmission across the network.

Claim Rejections - 35 USC § 103

12. Claims 7-9, 12-14, 27-28, 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lett et al, U.S. Patent Application Publication 2003/0009099 and Humphreys et al, *WireGL: A Scalable Graphics System for Clusters,* ACM SIGGRAPH 2001, Los Angeles, CA, August, 2001, ACM Press, NY, NY, pp. 129-140, as applied to claim 1, in further view of Gupta et al, U.S. Patent 6,622,171 and FOLDOC, Free on-line dictionary of computing terms, available on the world wide web at: http://foldoc.doc.ic.ac.uk/foldoc/index.html, 12/17/1997.

13. Regarding claim 8, representative of claims 7, 9, 12-14, 27-28, 33-35, Lett discloses the system, as set forth in claim 1, wherein the first network is internet (Page 4, Paragraph 46).

Lett does not disclose selected from a group consisting of wide area network, local area network, and extranet. Gupta teaches selected from a group consisting of wide area network, local area network. The motivation for combining networked distributed computing and visualizations with Internet, WAN, LAN is to enable synchronization of an image object in a media stream using a logical connection to one or more remote computers in a commonplace communication modes (Column 1, lines 19-27; Column 2, lines 1-36; Column 5, lines 24-54). Gupta is evidence that at the time of the invention, it would have been obvious to one skilled in the art of designing remote distributed collaborative processing machines, to combine the benefits of distributed computing and visualizations, as Lett discloses, with commonplace

communication modes, as Gupta teaches, to enable synchronized image transmission in a media streaming.

Lett does not disclose extranet. FOLDOC teaches extranet. The motivation for combining network with extranet is to enable certain users to access the private data via the world wide web. FOLDOC is evidence that at the time of the invention, it would have been obvious to one skilled in designing networked distributed computing, to combine the benefits of distributed computing and visualizations, as Lett discloses, with extranet, as FOLDOC teaches, for secure private connections for certain users.

Claim Rejections - 35 USC § 103

14. Claims 24, 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lett et al, U.S. Patent Application Publication 2003/0009099 and Humphreys et al, *WireGL: A Scalable Graphics System for Clusters*, ACM SIGGRAPH 2001, Los Angeles, CA, August, 2001, ACM Press, NY, NY, pp. 129-140, as applied to claims 19 and 25, in further view of Gupta et al, U.S. Patent 6,622,171 and Ross et al, U.S. Patent 6,608,628.

15. Regarding claim 24, representative of claims 30, 31, Lett and Humphreys disclose the distributed resource system, as set forth in claim 19, wherein the controller means comprises a network compositor operable to receive pixel data from the second resource means, composite the pixel data into a plurality of images for display on the display means (see above).

Lett does not disclose and throttle those second resource means which are sending data substantially faster than other second resource means. Gupta teaches and throttle those second

resource means which are sending data substantially faster than other second resource means (Column 2, lines 1-36). The motivation for combining networked distributed computing and visualizations with speeding up or slowing down of the media speed is to enable synchronization of an image object in a media stream using a logical connection to one or more remote computers in a commonplace communication modes (Column 1, lines 19-27; Column 2, lines 1-36; Column 5, lines 24-54). Gupta is evidence that at the time of the invention, it would have been obvious to one skilled in the art of designing remote distributed collaborative processing machines, to combine the benefits of distributed computing and visualizations, as Lett discloses, with speed control, as Gupta teaches, to enable synchronized image transmission in a media streaming.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen E. Quillen whose telephone number is (703) 605-4584. The examiner can normally be reached on Tuesday – Friday, 8:30am – noon and 1:00 - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella, can be reached on (703) 308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or FAX'd to:

(703) 872-9314 (for Technology Center 2600 only)

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Sixth Floor (Receptionist), Arlington, Virginia

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number (703) 305-9600 or (703) 305-3800.

Allen E. Quillen
Patent Examiner
Art Unit 2676

***

January 16, 2004

Kee M. Tung
Primary Examiner